

Document made available under the Patent Cooperation Treaty (PCT)

International application number: PCT/US05/003531

International filing date: 28 January 2005 (28.01.2005)

Document type: Certified copy of priority document

Document details: Country/Office: US
Number: 60/545,322
Filing date: 17 February 2004 (17.02.2004)

Date of receipt at the International Bureau: 11 March 2005 (11.03.2005)

Remark: Priority document submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b)



World Intellectual Property Organization (WIPO) - Geneva, Switzerland
Organisation Mondiale de la Propriété Intellectuelle (OMPI) - Genève, Suisse

1291119

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

March 02, 2005

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE.

APPLICATION NUMBER: 60/545,322

FILING DATE: February 17, 2004

RELATED PCT APPLICATION NUMBER: PCT/US05/03531



Certified by

Under Secretary of Commerce
for Intellectual Property
and Director of the United States
Patent and Trademark Office

PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

Express Mail Label No. EV 287 981 830 US

22154 U.S. PTO
60/545322

021704

INVENTOR(S)					
Given Name (first and middle [if any])		Family Name or Surname		Residence (City and either State or Foreign Country)	
Joe		Lindley		Paducah, KY	
<input type="checkbox"/> Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (500 characters max)					
CONCRETE FINISHING KIT					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
<input checked="" type="checkbox"/> Customer Number		23643			
OR					
<input type="checkbox"/> Firm or Individual Name					
Address					
Address					
City		State		ZIP	
Country		Telephone		Fax	
ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/>	Specification	Number of Pages	12	<input type="checkbox"/>	CD(s), Number
<input checked="" type="checkbox"/>	Drawing(s)	Number of Sheets	29	<input type="checkbox"/>	Other (specify)
<input type="checkbox"/>	Application Data Sheet. See 37 CFR 1.76				
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT					
<input checked="" type="checkbox"/>	Applicant claims small entity status. See 37 CFR 1.27.				FILING FEE AMOUNT (\$)
<input checked="" type="checkbox"/>	A check or money order is enclosed to cover the filing fees				
<input checked="" type="checkbox"/>	The Director is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number				
<input type="checkbox"/>	Payment by credit card. Form PTO-2038 is attached.				
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input checked="" type="checkbox"/>	No.				
<input type="checkbox"/>	Yes, the name of the U.S. Government agency and the Government contract number are: _____				

Respectfully submitted,

SIGNATURE

Kevin D. Bailey

Date

2/17/04

TYPED or PRINTED NAME

Kevin D. Bailey

REGISTRATION NO.

46531

(if appropriate)

Docket Number:

21799-74601

TELEPHONE

317-231-7724

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Provisional Application,

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

BARNESÞBURG

11 South Meridian Street
Indianapolis, Indiana 46204
(317)236-1313

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group: Unknown
Attorney Docket: 21799-74601
Applicant: Joe Lindley
Invention: CONCRETE FINISHING KIT
Filed: Herewith (February 17, 2004)
Examiner: Unknown

CERTIFICATE UNDER 37 C.F.R. § 1.10

Mail Stop Provisional Patent Application
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

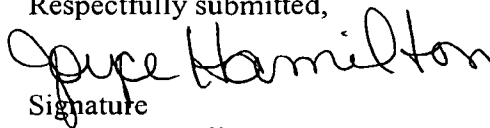
Express Mail label number: EV 287 981 830 US

Date of deposit: February 17, 2004

Sir:

I hereby certify that the enclosed paper or fee is being deposited with the United States Postal Service as "Express Mail Post Office to Addressee" service under 37 C.F.R. § 1.10 on the date indicated above addressed to the Mail Stop Provisional Patent Application, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.

Respectfully submitted,



Signature

Joyce D. Hamilton

Typed or Printed Name

Enclosure
Indianapolis, Indiana
(317) 231-7820

EXPRESS MAIL NO. EV 287 981 830 US

PROVISIONAL PATENT APPLICATION

of

JOE LINDLEY
(Paducah, KY)

for

CONCRETE FINISHING KIT

Client Reference JLC-105

Attorney Docket 21799-74601

CONCRETE FINISHING KIT

The present disclosure relates to apparatus for working with concrete. More particularly, the present disclosure relates to apparatus for finishing or otherwise treating freshly poured concrete before it cures.

5 A variety of tools are used to finish concrete. Such tools include screeds and vibrators. A screed is drawn over freshly poured concrete to level it. A vibrator is used to vibrate freshly poured concrete to consolidate the concrete to increase its strength when it cures.

10 The detailed description particularly refers to the accompanying figures in which:

Fig. 1a is a perspective view showing components of a concrete finishing kit assembled as a screed device that includes a vibration device coupled to a frame to vibrate a screed to level freshly poured concrete;

15 Fig. 1b is a reduced perspective view showing the vibration device uncoupled from the frame for use as a stand-alone device to vibrate freshly poured concrete to consolidate such concrete;

Figs. 2 and 3 are perspective views showing use of the screed device to level concrete;

20 Fig. 4 is a front elevation view showing a support included in the frame of screed device;

Fig. 5 is a side elevation view of the support of the screed device frame;

Fig. 6 is a perspective view showing coupling of a power unit of the vibration device to the support of the screed device frame;

25 Fig. 7 is a perspective view of the power unit;

Figs. 8 and 9 are perspective views showing components of a power unit mount for mounting the power unit;

Fig. 10a is a front elevation view of the power unit mount;

Fig. 10b is a plan view of an upper jaw included the power unit mount;

30 Fig. 11 is a side elevation view of the power unit mount;

Fig. 12 is a perspective view showing a mount included the frame of the screed device and showing coupling of the support and the screed to the mount;

Figs. 13-15 are perspective views showing coupling of the support to the mount;

Fig. 16 is a front elevation view of a base included in the mount;

Fig. 17 is a side elevation view of the base included in the mount;

5 Figs. 18 and 19 are perspective views showing coupling of the vibrator to the mount;

Fig. 20 is a perspective view showing a pair of shoes and a pair of levers that cooperate with the shoes to couple the screed to the mount;

Fig. 21 is a sectional view taken along lines 21-21 of Fig. 20;

10 Fig. 22 is a sectional view similar to Fig. 21 showing another shoe for use in coupling the screed to the mount;

Fig. 23 is a perspective view showing another screed for use with screed device;

Fig. 24 is a sectional view taken along lines 24-24 of Fig. 23.

15 Fig. 25 is a perspective view showing components of the concrete finishing kit assembled as another screed device for leveling freshly poured concrete;

Fig. 26 is a rear elevation view of a support included in a frame of the screed device of Fig. 25;

Fig. 27 is a side elevation view of the support of Fig. 26;

20 Fig. 28 is a perspective view showing the power unit mounted to a power unit mount for release therefrom;

Fig. 29a is a front elevation view, with portions broken away, of the power unit mount of Fig. 28;

25 Fig. 29b is a plan view of a component of the power unit mount of Fig. 29a;

Fig. 30 is a perspective view showing a bottom portion of the support of Figs. 26 and 27 coupled to a mount;

30 Fig. 31 is a perspective view showing components of the concrete finishing kit assembled as another screed device for leveling freshly poured concrete; and

Figs. 32 and 33 are perspective views of components of a frame included in the screed device of Fig. 31.

Components of a concrete finishing kit 10 may be arranged as a screed device 12, as shown, for example, in Fig. 1a, or as a vibration device 16, as shown, for example, in Fig. 1b. Screed device 12 is useful for leveling freshly poured concrete 14, as shown, for example, in Figs. 2 and 3. Vibration device 16 is useful as part of screed device 12 and as a stand-alone device. Vibration device 16 is coupled to a frame 18 to vibrate a screed 19 to promote leveling of concrete 14 when it is used as part of screed device 12, as shown, for example, in Fig. 1a. Vibration device 12 is removable from frame 18 to vibrate and consolidate concrete 14 when it is used as a stand-alone device, as shown, for example, in Fig. 1b.

Frame 18 includes a support 20, as shown, for example, in Figs. 4 and 5. Support 20 includes a generally U-shaped main member 22, an upper transverse member 24, and a lower transverse member 26. Upper and lower transverse members 24, 26 are coupled to parallel first and second side portions 28, 30 that are included in main member 22 and are interconnected by a transversely extending bottom portion 32 also included in main member 22.

A handgrip 34 included in support 20 is coupled to first side portion 28, as shown, for example, in Figs. 1a, 2, and 3. Handgrip 34 and first side portion 28 thus cooperate to provide a handle 36 which a user can hold to control screed device 12.

A power unit 38 shown, for example, in Figs. 6 and 7 is included in vibrator unit 16 to power a vibrator 39 through a flexible portion 46. Power unit 38 can be coupled to support 20 when vibration device 16 forms part of screed device 12 and can be removed from support 20 when vibration device 16 is used as a stand-alone device.

Power unit 38 includes a handle 40, as shown, for example, in Figs. 6 and 7. Handle 40 is useful as a second handle for a user to hold to control screed device 12 when vibration device 16 forms part of screed device 12. Handle 40 can also be used when vibration device 16 is used by itself. A strap 47 shown, for example, in Figs. 1a, 6, and 7 can be coupled to power unit 38 to facilitate carrying power unit 38.

Power unit 38 further includes a motor 42 (e.g., a gas or electric motor with a power output of about 1.5 hp), an elongated connector 44, and a controller 48, as shown, for example, in Figs. 6 and 7. Handle 40 is located between motor 42 and

elongated connector 44 which is used to connect power unit 38 to support 20 and flexible portion 46. Rotation of a motor shaft (not shown) of motor 42 is transmitted to an eccentric (not shown) included in vibrator 39 through flexible portion 46. The motor shaft extends from motor 42 through handle 40, controller 48, and elongated
5 connector 44 for coupling to flexible portion 46.

Controller 48 is located between handle 40 and elongated connector 44, as shown, for example, in Figs. 6 and 7. Controller 48 includes a throttle control 50 for throttling motor 42 and an on/off switch 52 for allowing starting of motor 42 and for shutting motor 42 off.

10 Support 20 includes a releasable power unit mount 54 for releasably mounting power unit 38 when vibration device 16 forms part of screed device 12, as shown, for example, in Figs. 6 and 8-11. Mount 54 includes a support side portion clamp 56 for clamping second side portion 30, a power unit clamp 58 for clamping elongated connector 44, and an intermediate portion 60 interconnecting first and
15 power unit clamps 56, 58.

Support side portion clamp 56 includes first and second side jaws 62 and a clamping force adjuster 64, as shown, for example, in Figs. 6, 9, and 10a. Side jaws 62 extend from intermediate portion 60 and cooperate to provide an inclined channel 66 through which second side portion 30 extends. Adjuster 64 is used to
20 draw side jaws 62 toward one another to cause side jaws 62 to clamp against second side portion 30 with a clamping force. Adjuster 64 can reduce the clamping force to allow removal of mount 54 from second side portion 30. Illustratively, adjuster 64 includes a bolt 67 that extends through a washer 69 and an aperture 71 formed in each side jaw 62.

25 Power unit clamp 58 includes a lower jaw 68, an upper jaw 70, and clamping force adjuster 72, as shown, for example, in Figs. 6 and 8-11. Lower jaw 68 extends upwardly from intermediate portion 60 and is U-shaped so as to include a pair of diverging side arms 73, 75 formed to include a central, larger recess 74 that faces upwardly. Upper jaw 70 is formed to include a central, smaller recess 76 that faces
30 downwardly. Recesses 74, 76 cooperate to receive therebetween a tubular case 78 included in elongated connector 44.

Adjuster 72 includes a first coupler 80 and a second coupler 82, as shown, for example, in Figs. 6, 8, and 9. First coupler 80 couples a first end portion

84 of upper jaw 70 to first side arm 73 and provides a pivot axis 86 about which upper jaw 70 can pivot between a release position and a clampable position. In the release position, a second end portion 88 of upper jaw 70 is disengaged from second coupler 82 so that tubular case 78 can be removed from power unit clamp 58, as shown, for example, in Figs. 8 and 9. In the clampable position, second end portion 88 engages second coupler 82 to allow actuation of second coupler 82 to cause movement of second end portion 88 toward lower jaw 68 to a clamped position clamping tubular case between jaws 68, 70 with a clamping force, as shown, for example, in Fig. 6.

Illustratively, first coupler 80 includes a washer 90 and a threaded bolt 92, as shown, for example, in Fig. 8. Bolt 92 extends through washer 90 and an aperture 94 formed in first end portion 84 and into a threaded channel 96 formed in first side arm 73.

Illustratively, second coupler 82 includes a threaded bolt 98 and a rotatable knob 100, as shown, for example, in Figs. 6, 8, 9, and 11. Bolt 98 extends into a threaded channel 102 formed in second side arm 75. Knob 100 is coupled to bolt 98 to rotate bolt 98 in opposite directions about an axis 103. Second end portion 88 is formed to include an arcuate slot 104, shown, for example, in Fig. 10b. Bolt 98 extends through slot 104 when upper jaw 70 is positioned in the clampable and clamped positions. Bolt 98 is positioned outside of slot 104 when upper jaw 70 is positioned in the release position. To clamp tubular case 78 between jaws 68, 70, knob 100 is rotated in a clamping direction to move knob 100 toward second side arm 75 and to move second end portion 88 toward second side arm 75 due to engagement between knob 100 and second end portion 88. To unclamp tubular case 78, knob 100 is rotated in an opposite unclamping direction to move knob away from second side arm 75 so that the grip on tubular case 78 between jaws 68, 70 is relaxed.

Use of power unit mount 54 thus facilitates ready coupling of power unit 38 to an upper portion 106 of frame 18 and ready uncoupling of power unit 38 from upper portion 106 of frame 18. Changing between screed and vibration devices 12, 16 is thereby promoted.

Coupling power unit 38 to upper portion 106 instead of a lower portion 108 of frame 18 enhances operation of screed device 12. Inhalation of cement dust by motor 42 and splashing of concrete 14 onto motor 42 is minimized because motor 42 is raised away from cement 14. Exhaust gas from motor 42 is discharged behind the

user instead of in front of the user to minimize inhalation of exhaust gas by user. Weight of power unit 38 can be carried by both hands of user. Placing power unit 38 on upper portion 106 instead of lower portion 108 enables greater vibration of screed 19.

5 A lockable stand 110 is coupled to second side portion 30 by use of a pivot mount 111 for pivotable movement to an extended position to support screed device 12 in an upright position when screed device 12 is not in use, as shown, for example, in Fig. 1a. A rotatable stand lock 112 is used to lock stand 110 in its extended position. Lock 110 can be rotated in an unlocking direction to release stand
10 110 so that stand 110 can be pivoted to a collapsed position for storage alongside second side portion 30 during use of screed device 12, as shown, for example, in Figs. 2 and 3. Stand 110 can be locked in the collapsed position by rotation of lock 112 in an opposite locking direction.

 Frame 18 includes a mount 114, as shown, for example, in Figs. 1a and
15 12-19. Support 20, vibrator 39, and screed 19 are coupled to mount 114.

 Mount 114 includes a pair of support bottom portion clamps 116 for clamping bottom portion 32 of support 20, as shown, for example, in Figs. 1a and 12-15. Each clamp 116 includes a first jaw 118, a second jaw 120, and a clamping force adjuster 122. First jaw 118 is coupled to a strut 121 of a base 123 included in mount
20 114 and cooperates with second jaw 120 to clamp bottom portion 32 with a clamping force. Adjuster 122 is arranged to move second jaw 120 relative to first jaw 118 to adjust the clamping force with which jaws 118, 120 clamp bottom portion 32. In this way, the clamping force can be reduced to allow pivotable movement of support 20 relative to mount 114 for adjustment of the angle at which support 20 is inclined to
25 accommodate the comfort needs of different users. Once the angle of inclination has been adjusted as desired, adjuster 122 can increase the clamping force to prevent pivotable movement of support 20 relative to mount 114 for use of screed device 12.

 Adjuster 122 includes a first coupler 124 and a second coupler 126, as shown, for example, in Fig. 15. Illustratively, first coupler 124 is a bolt that extends
30 through second jaw 120 into first jaw 118. Illustratively, second coupler 126 includes a rotatable knob 128 coupled to a bolt 130 extending through second jaw 120 into first jaw 118 to move second jaw 120 toward and away from first jaw 118 upon rotation of knob 128.

Mount 114 includes a releasable vibrator clamp 132 for clamping vibrator 39, as shown, for example, in Figs. 1a, 18, and 19. Clamp 132 includes a pair of jaws 134 and a quick-release rotatable lever 136. Lever 136 is coupled to jaws 134 to move jaws 134 toward one another to clamp vibrator 39 upon rotation of lever 134 in a clamping direction and to unclamp vibrator 39 upon rotation of lever 136 in an unclamping direction to allow ready removal of vibration device 16 from vibrator clamp 132 for use of vibration device 16 by itself.

Vibrator clamp 132 is coupled to a body 138 that provides a top portion of base 123 and extends upwardly from strut 121, as shown, for example, in Figs. 18 and 19. Jaws 134 are coupled to a plate 140 which is coupled to base top portion 138 by use of a pair of couplers 142 that include, for example, bolts and washers.

Base 123 includes a pair of screed couplers 144 for coupling screed 19 to frame 18, as shown, for example, in Figs. 1a and 12. Each screed coupler 144 includes a slotted foot 146 and a quick-release lever 148. To couple screed 19 to frame 18, lever 148 is threaded partially into an inclined channel 147 formed in a lever receiver portion 149 of a shoe 150 included in screed 19 and foot 146 is positioned on lever 148 so that a slot 152 formed in foot 146 receives lever 148. Lever 148 is then rotated in a clamping direction to clamp foot 146 between lever 148 and lever receiver portion 149. Screed 19 can be readily uncoupled from frame 18 by rotating lever 148 in an unclamping direction to release foot 146. Lever receiver portion 149 is inclined somewhat to provide a clearance between lever 148 and a screed bar 154 included in screed 19 during rotation of lever 148.

Screed bar 154 includes a trapezoidal outer wall 156 and an inner wall 158 that partitions screed bar 154 into a forward triangular portion 160 and a rearward rectangular portion 162, as shown, for example, in Fig. 21. A core 164 is inserted within rectangular portion 162. Core 164 reinforces screed bar 154 to prevent its walls from collapsing and facilitate coupling of shoes 150 to screed bar 154. Illustratively, core 164 is made of wood and is about two feet long.

Each shoe 150 includes an upper mount plate 166 and a rear mount plate 168 depending therefrom, as shown, for example, in Figs. 20 and 21. Lever receiver portion 149 extends upwardly from upper plate 166 which is positioned on a top wall 170 of screed bar 154 and of rectangular portion 162. Two lag bolts 172

extend through upper mount plate 166 and top wall 168 into core 164. Rear mount plate 168 engages a rear wall 174 of screed bar 154 and of rectangular portion 162. A lag bolt 176 extends through rear mount plate 168 and rear wall 174 into core 164. Lag bolts 172, 174 cooperate to provide a shoe coupler. A reinforcement web 178
5 extends between lever receiver portion 149 and upper mount plate 166.

Another shoe 250 for use with screed bar 154 is shown, for example, in Fig. 22. Shoe 250 includes a lever receiver portion 249 formed to include a horizontal channel 247 for receiving a lever 148. Lever receiver portion 249 extends upwardly from an upper plate mount 266 and a front plate mount 267. Upper plate mount 266
10 is positioned on top wall 170 and interconnects front plate mount 267 and a rear plate mount 268. Front plate mount 267 extends forwardly and downwardly from upper plate mount 266 along an inclined front wall 180 included in triangular portion 160. Rear plate mount 268 depends from upper plate mount 266 along rear wall 174 in engagement therewith. A reinforcement web 278 extends between lever receiver
15 portion 249 and upper mount plate 266.

A rear core 264 is inserted in rectangular portion 162 and a front core 265 is inserted in triangular portion 160, as shown, for example, in Fig. 22. Cores 264, 265 reinforce screed bar 154 to prevent its walls from collapsing. Illustratively, cores 264, 265 are made of aluminum and are about two feet long.

20 A bolt 272 and a nut 276 cooperate to provide a coupler for coupling shoe 250 to screed bar 154, as shown, for example, in Fig. 22. Bolt 272 extends through rear mount plate 268, rear wall 174, rear core 264, inner wall 158, front core 265, front wall 180, and front mount plate 267.

A screed bar 354 for use with screed device 12 is shown, for example,
25 in Figs. 23 and 24. Screed bar 354 has a rectangular cross-section. A core 364 is inserted in screed bar 354 for reinforcement thereof and coupling of shoes 350 thereto. Illustratively, core 364 is made of wood and has a height of about two inches, a width of about four inches, and a length of about two feet.

Each shoe 350 includes a lever receiver portion 359, an upper plate
30 mount 366, and a rear plate mount 368, as shown, for example, in Figs. 23 and 24. Lever receiver portion 359 is formed to include an inclined channel 347 to receiver a lever 148 and extends upwardly and rearwardly from upper plate mount 366 and rear plate mount 368. Upper plate mount 366 is positioned on a top wall 370 of screed bar

354. Rear plate mount 368 depends from upper plate mount 366 and engages a rear wall 374. A front reinforcement web 378 extends between lever receiver portion 359 and upper plate mount 366. A rear reinforcement web 379 extends between lever receiver portion 359 and rear plate mount 368. A pair of lag bolts 372 extends
5 through upper plate mount 366 and top wall 370 into core 364. A lag bolt (not shown) extends through rear plate mount 368 and rear wall 374 into core 364.

Components of concrete finishing kit 10 may be arranged as a single-handle screed device 412 for leveling freshly poured concrete, as shown, for example, in Fig. 25. Screed device 412 is similar to screed device 12 except that a support 420
10 replaces support 20. Structures similar to what have already been described are indicated by use of the same reference numbers.

Support 420 includes a generally triangle-shaped main member 422 and a transverse member 424, as shown, for example, in Figs. 25-27. Main member 422 includes a bottom portion 432 and first and second side portions 428, 430 that are
15 interconnected by bottom portion 432 and converge as they extend from bottom portion 432 toward one another to a side portion coupler 433.

Side portion coupler 433 is configured, for example, as a clamp including an upper jaw 434, a lower jaw 435, and a plurality (e.g., three) of fasteners 436 interconnecting jaws 434, 435, as shown, for example, in Figs. 25 and 28. Each
20 side portion 428, 430 extends through an aperture 437 formed between jaws 434, 435.

Lockable stand 110 is coupled to support 420 by use of pivot mount 111 to support screed device 412 in an upright position when screed device 412 is not in use, as shown, for example, in Fig. 25. Illustratively, pivot mount 111 is used to couple stand 110 to first side portion 428. It is within the scope of this disclosure for
25 pivot mount 111 to be used to couple stand 110 to second side portion 430.

Support includes a releasable power unit mount 454 for releasably mounting power unit 38 when vibration device 16 forms part of screed device 412, as shown, for example, in Figs. 28, 29a, and 29b. Mount 454 includes a support side portion clamp 456 for clamping an extension 457 of second side portion 430 and a
30 power unit clamp 58 which is coupled to clamp 456 and is described above in connection with the discussion of screed device 12.

Support side portion clamp 456 includes first and second side jaws 462 and a clamping force adjuster 464, as shown, for example, in Figs. 28 and 29a.

Side jaws 462 depend from lower jaw 68 of power unit clamp 58 and cooperate to provide a channel 466 through which extension 457 extends. Side jaws 462 are shorter than side jaws 62 of clamp 56 because the axis 465 of channel 466 is perpendicular to, rather than inclined relative to, outer faces 469 of side jaws 462.

5 Adjuster 464 is used to draw sides jaws 462 toward one another to cause side jaws 462 to clamp against extension 457 with a clamping force. Adjuster 464 can reduce the clamping force to allow removal of mount 454 from extension 457. Adjuster 464 includes a bolt 467 that extends through a washer (not shown) and an aperture 471 formed in each side jaw 462.

10 Bottom portion 432 of support 420 is coupled to clamps 116 of mount 114, as shown, for example, in Fig. 30. Clamps 116 can be loosened to allow rotation of support 420 and power unit 38 coupled thereto for adjustment of the height of power unit 38. Clamps 116 can be re-tightened to establish the desired height of power unit 38.

15 Vibration device 16 is removable from a frame 418 of screed device 412 so that vibration device 16 can be used as a stand-alone device to vibrate freshly poured concrete. Frame 418 includes support 420 and mount 114. Rotatable knob 100 can be loosened to allow removal of power unit 38 from power unit mount 454 of support 420. Vibrator clamp 132 can be loosened to allow removal of vibrator 39
20 therefrom. Vibration device 16 can thus be removed from power unit mount 454 and vibrator clamp 132 for use of vibration device 16 by itself.

Components of concrete finishing kit 10 may be arranged as another screed device 512 for leveling freshly poured concrete, as shown, for example, in Fig. 31. A vibration device 516 included in screed device 512 to vibrate a screed 519 may
25 be removed from a frame 518 included in screed device 512 for use as a stand-alone device to vibrate freshly poured concrete.

Vibration device 516 includes power unit 38, vibrator 39, and a power transmitter 546 extending therebetween to transmit power generated by power unit 38 to vibrator 39, as shown, for example, in Fig. 31. Power transmitter 546 includes a
30 rigid tubular case 547 made of, for example, aluminum and coupled to elongated connector 44, a drive shaft (not shown) extending through case 547, and a vibration isolator 548 positioned between vibrator 39 and case 547 to isolate vibration generated by vibrator 39 from power unit 38. Components of vibration device 516

are disclosed in PCT International Application No. PCT/US03/15139 filed May 14, 2003, the disclosure of which is hereby incorporated by reference herein.

A handle 536 for use by an operator is coupled to case 547, as shown, for example, in Fig. 31. A clamp 537 is coupled to handle 536 and case 547 and includes a rotatable knob 538 to tighten clamp 537 about case 547 and to loosen
5 clamp 537 about case 547 for removal of clamp 537 and handle 536 from vibration device 516.

Frame 518 includes a support 520 and a mount 114, as shown, for example, in Fig. 31. Vibration device 516 is configured to be coupled to support 520
10 and a vibrator clamp 132 included in mount 114 for use of vibration device 516 as part of screed device 512 and is configured to be removed from support 520 and vibrator clamp 132 for use of vibration device 516 as a stand-alone device. An insert 539 is positioned between jaws 134 of vibrator clamp 132 to surround and grip
vibrator 39.

Support 520 includes a first side portion 528, a second side portion 530, and a releasable mount 554, as shown, for example, in Figs. 31 and 32. Side portions 528, 530 are coupled to opposite sides of strut 121 of base 123 for pivotable movement relative thereto during use of screed device 512, as shown, for example, in Fig. 33. Side portions 528, 530 are also coupled to opposite sides of mount 554 for
15 pivotable movement relative thereto during use of screed device 512. Side portions 528, 530 converge toward one another as they extend from strut 121 to mount 554. A threaded bolt 531, nut 532, and washer 533 cooperate to provide a coupler 534 and are used to couple each side portion 528, 530 to strut 121 and to mount 554.

Mount 554 is configured to mount vibration device 516 thereto for
25 release therefrom, as shown, for example, in Figs. 31 and 32. Mount 554 includes clamp 58 which is described above in connection with the discussion of screed device 12. Case 547 is coupled to clamp 58 when vibration device 516 is used with screed device 512 and is released from clamp 58 when vibration device 516 is used as a stand-alone device.

Lockable stand 110 is coupled to a stand clamp 556 included in mount 554 for pivotable movement between extended and collapsed positions, as shown, for example, in Fig. 32. Clamp 556 includes a pair of side jaws 562 depending from lower jaw 68 of clamp 58. A lock 612 configured, for example, as a lever is used to
30

draw jaws 562 toward one another to lock stand 110 therebetween in the extended and collapsed position. When lock 612 is loosened, stand 110 is allowed to rotate about a stand pivot axis 563 between the extended and collapsed positions.

Vibration device 516 can be readily removed from frame 518. Knob
5 100 of clamp 58 and lever 136 of vibrator clamp 132 rotated to allow removal of
vibration device 516 frame 518 for use as a stand-alone device.

An operator can hold onto one or both of handle 40 of power unit 38
and handle 536 when vibration device 516 is used with screed device 512 or as a
stand-alone device. Because motor 42 is coupled to handle 40 rather than to base 123
10 or screed 519, a larger vibrator 39 can be used.

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

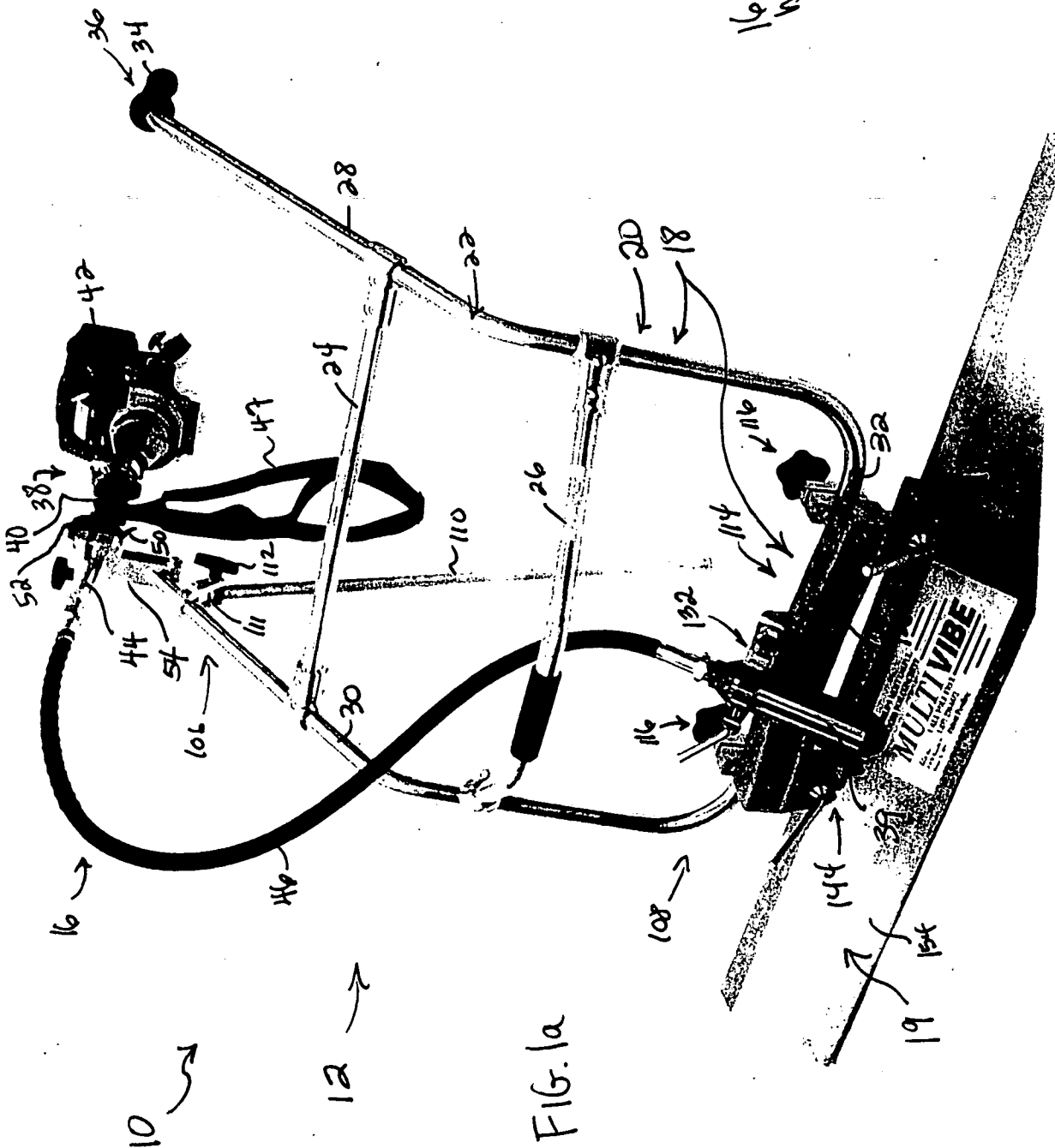


FIG. 1a

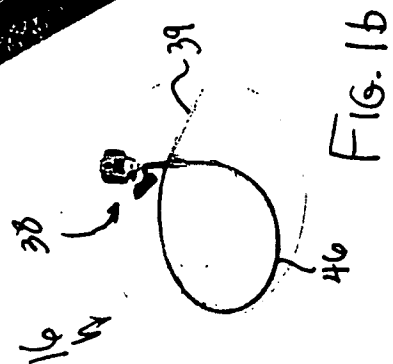
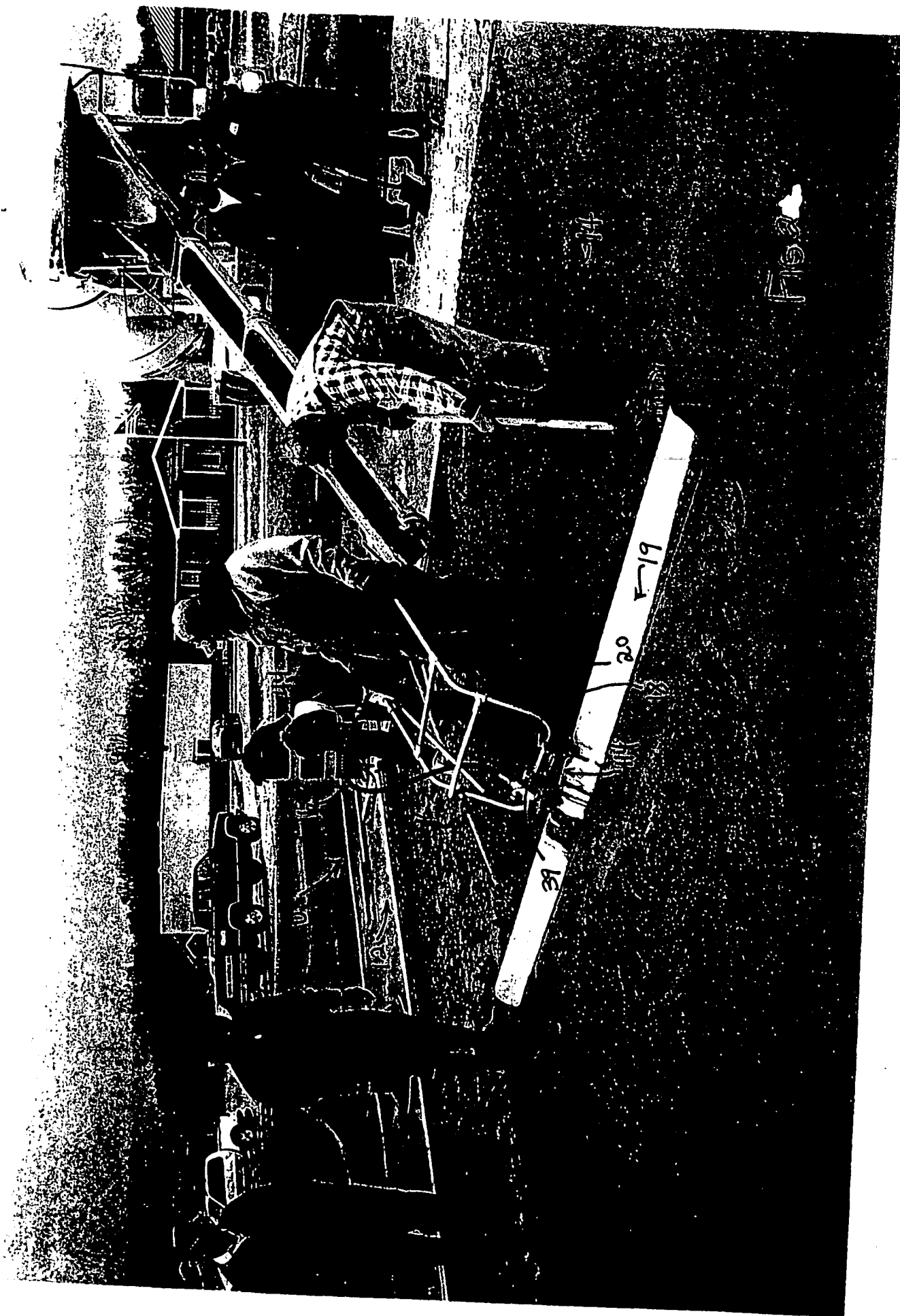


FIG. 1b



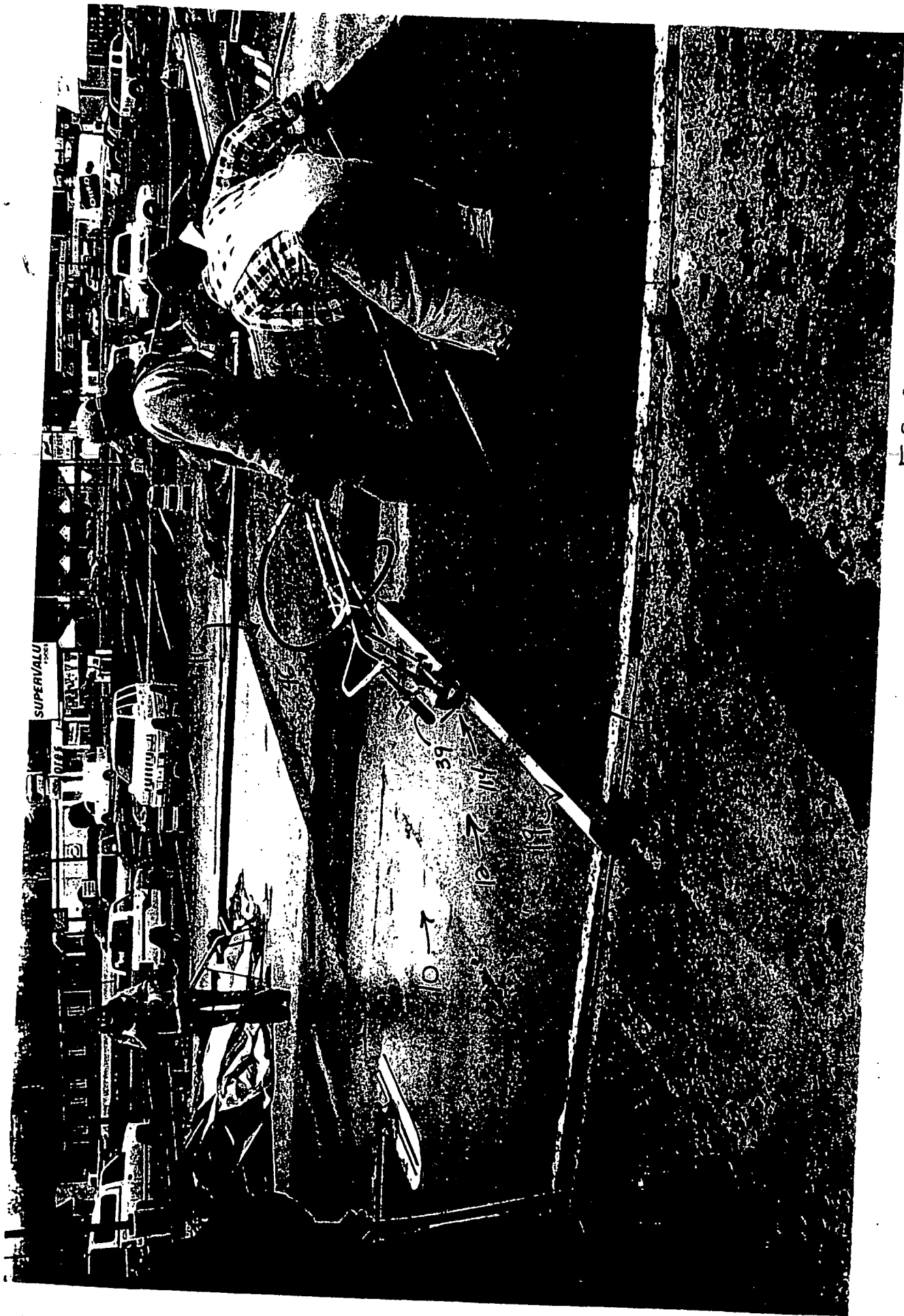


FIG-3

6061-T6 alum.
1" OD X .125 Wall

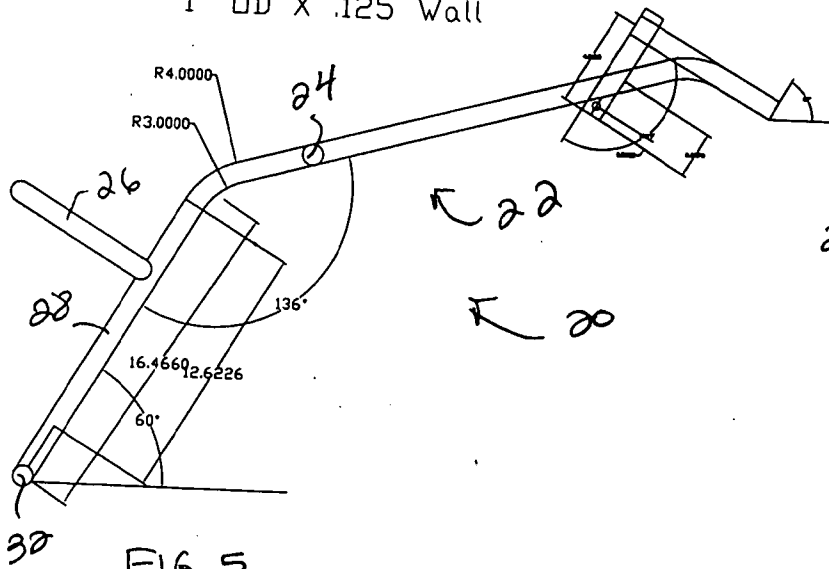


FIG. 5

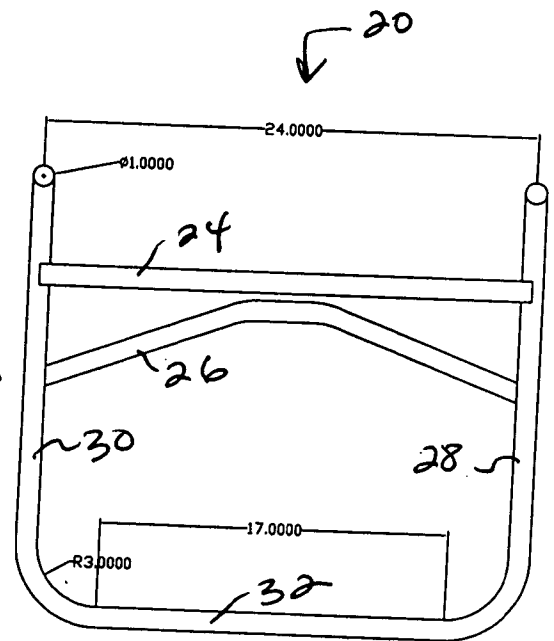


FIG. 4

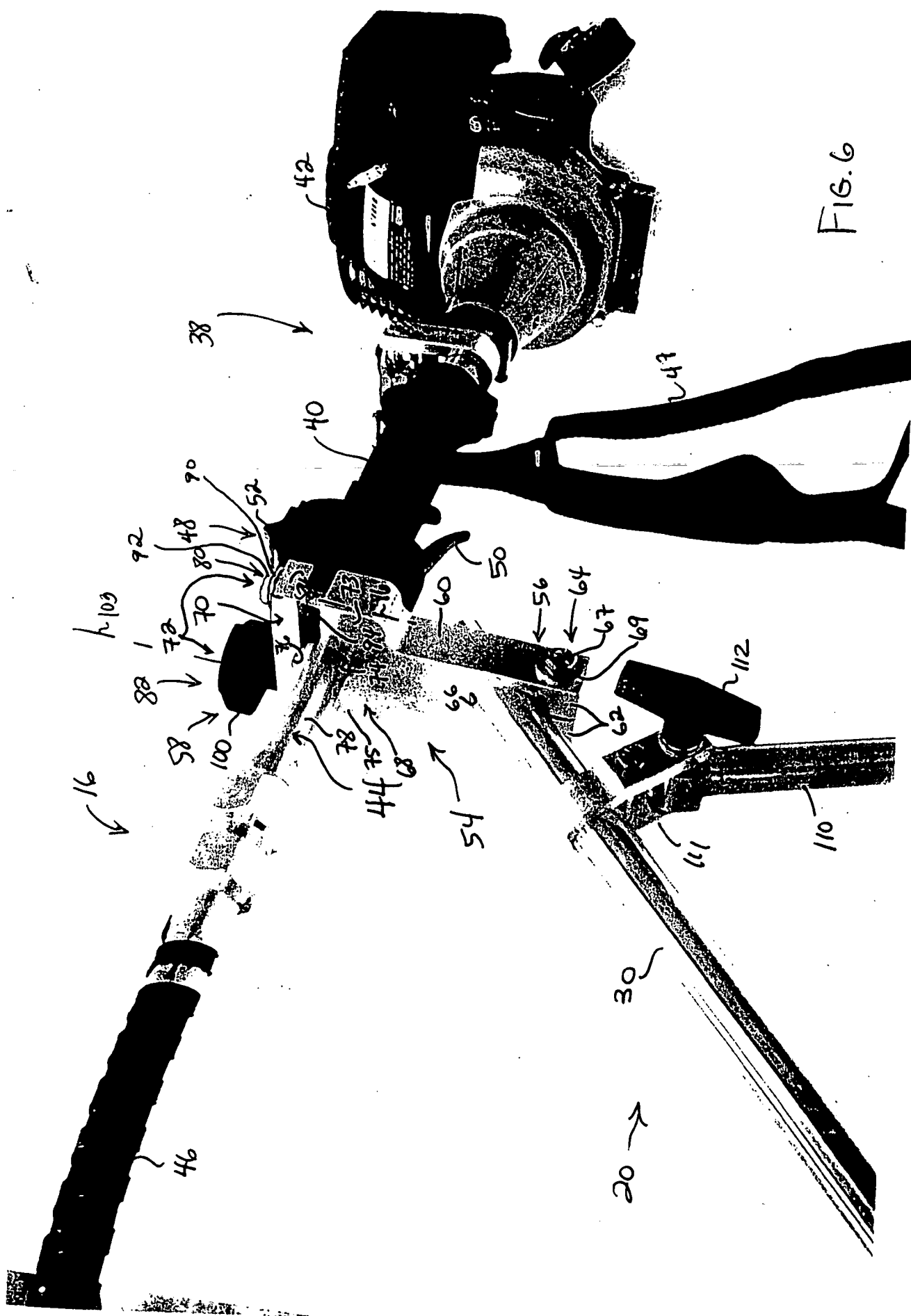


Fig. 6

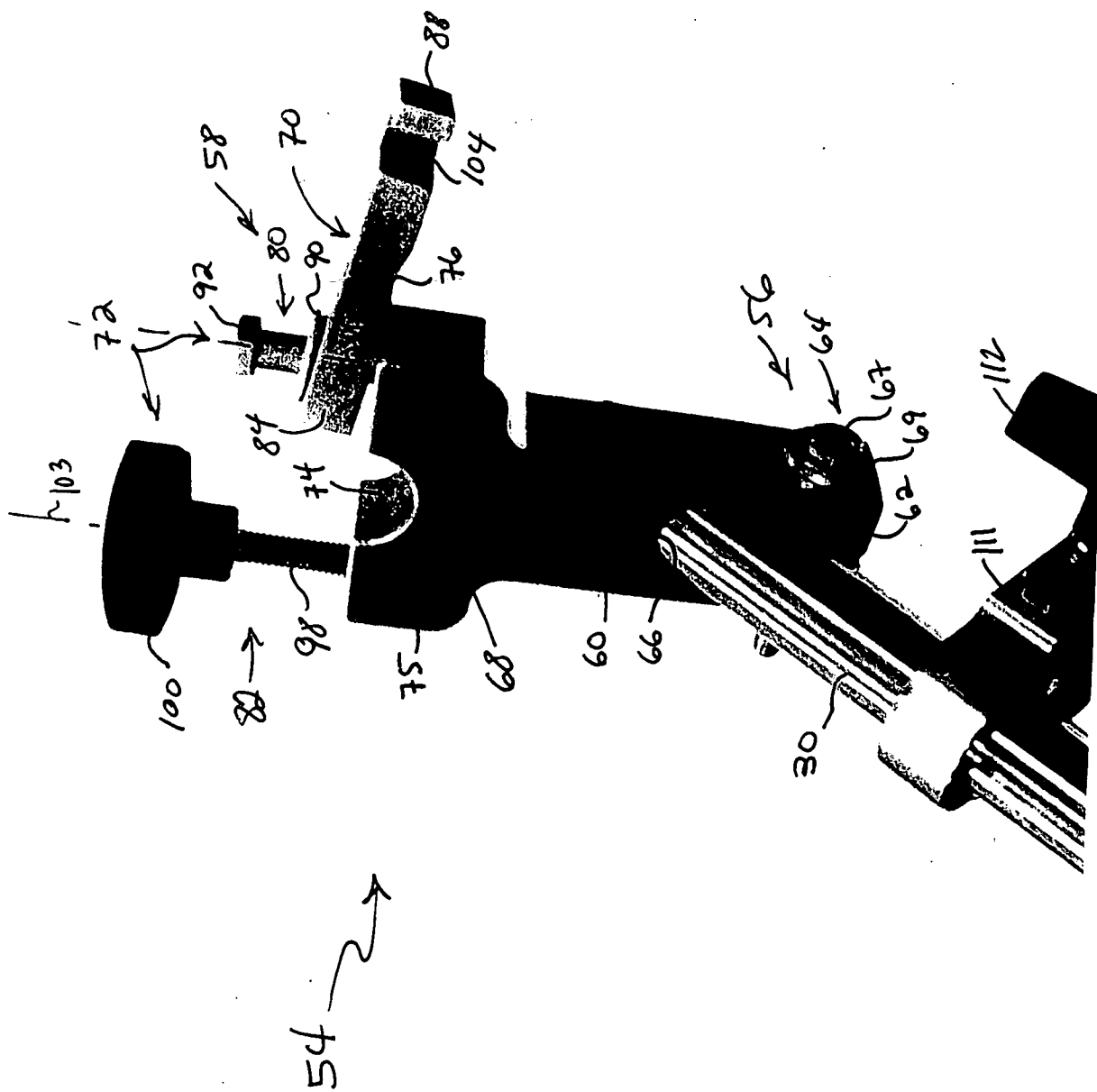


FIG. 8



Fig. 9

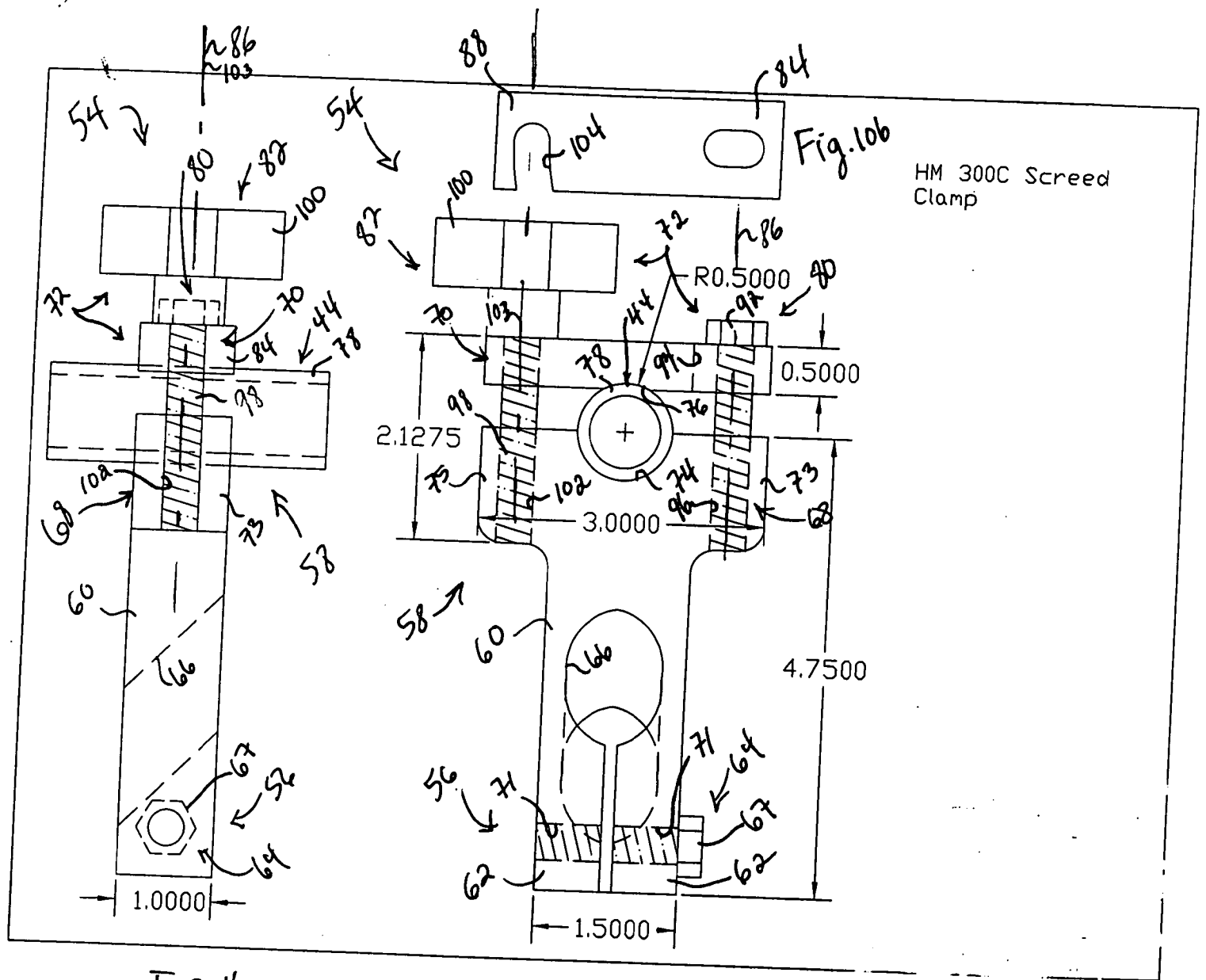


FIG. 11

FIG. 10a

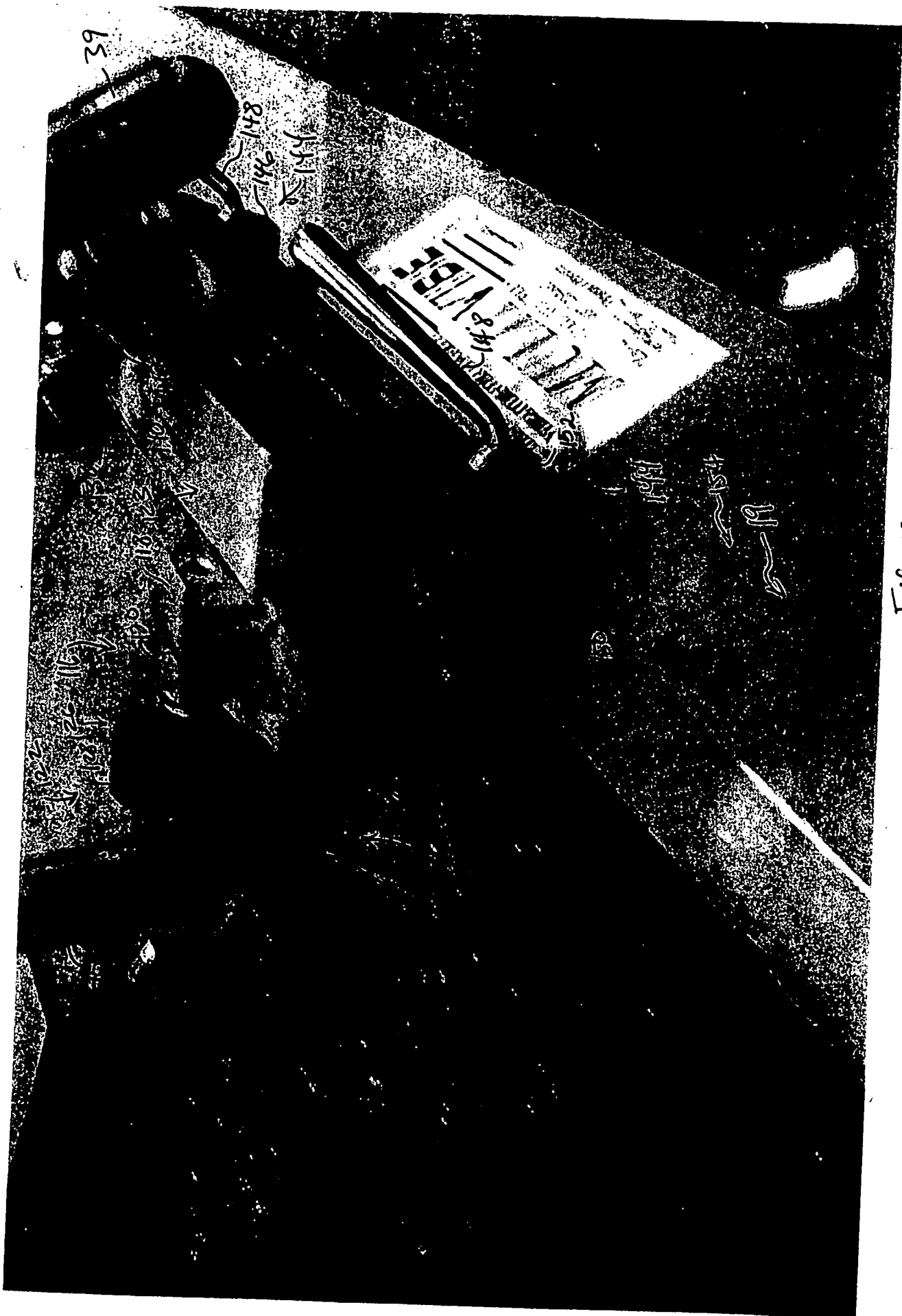


Fig. 12

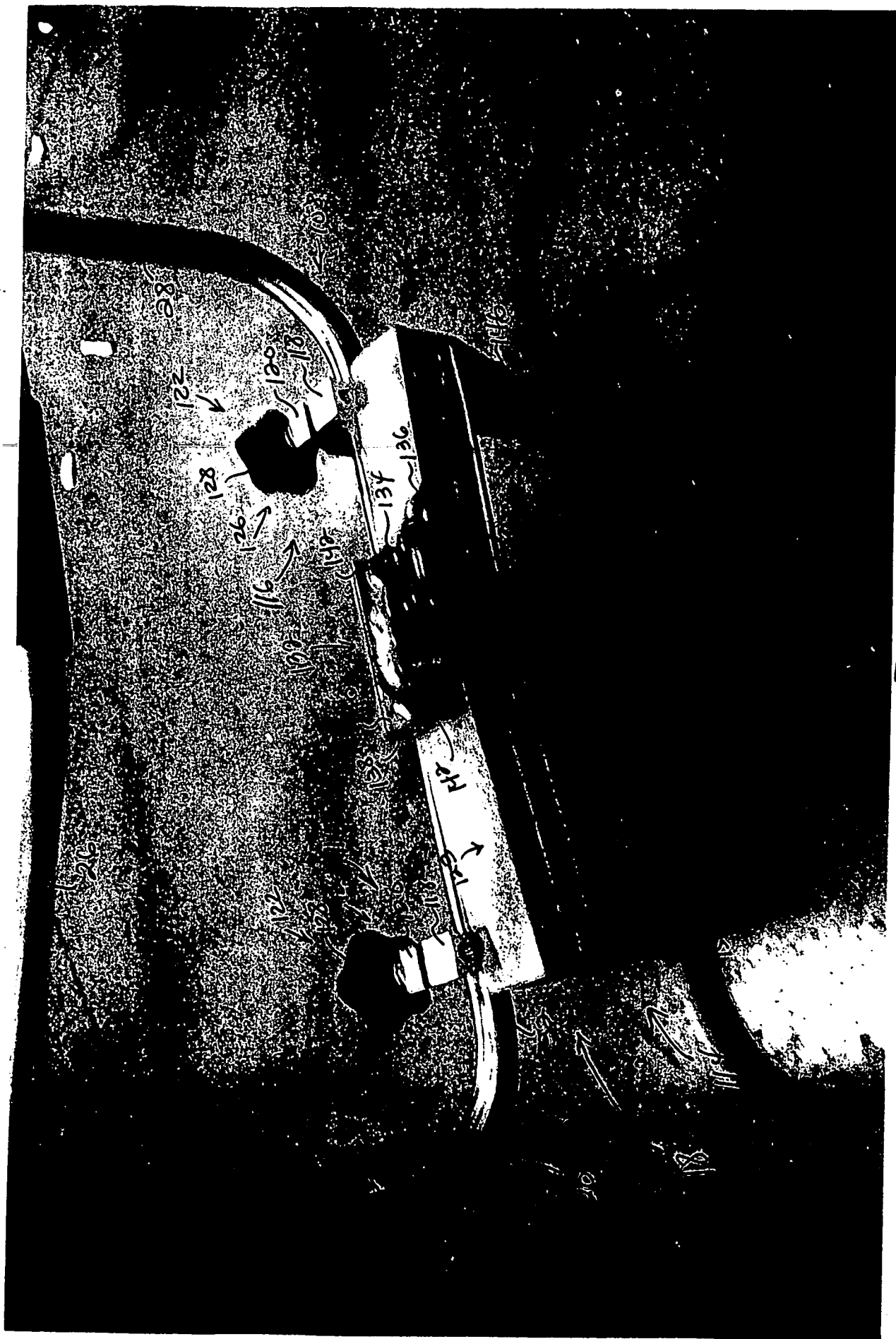


FIG. 13

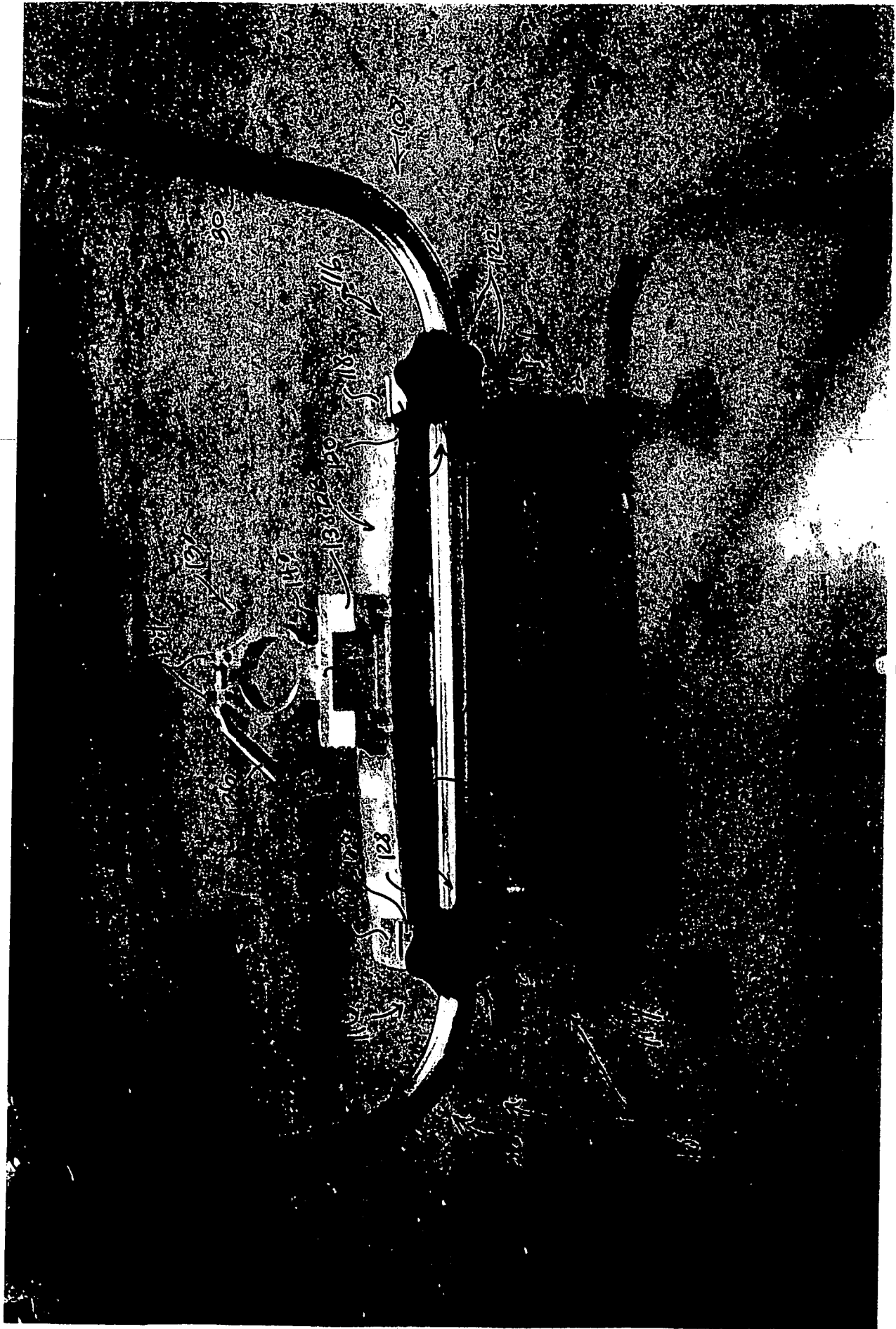


FIG. 14



Fig. 15

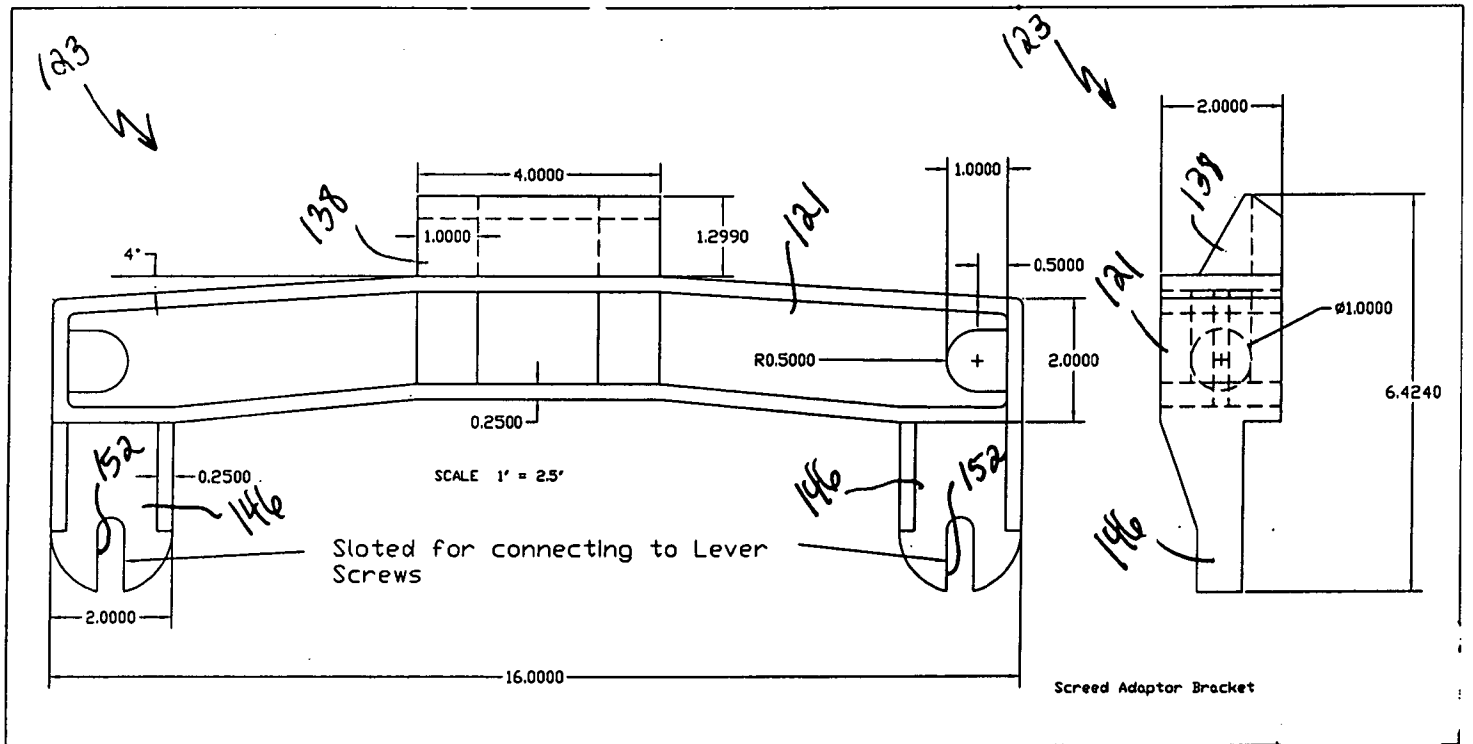


FIG. 16

FIG. 17

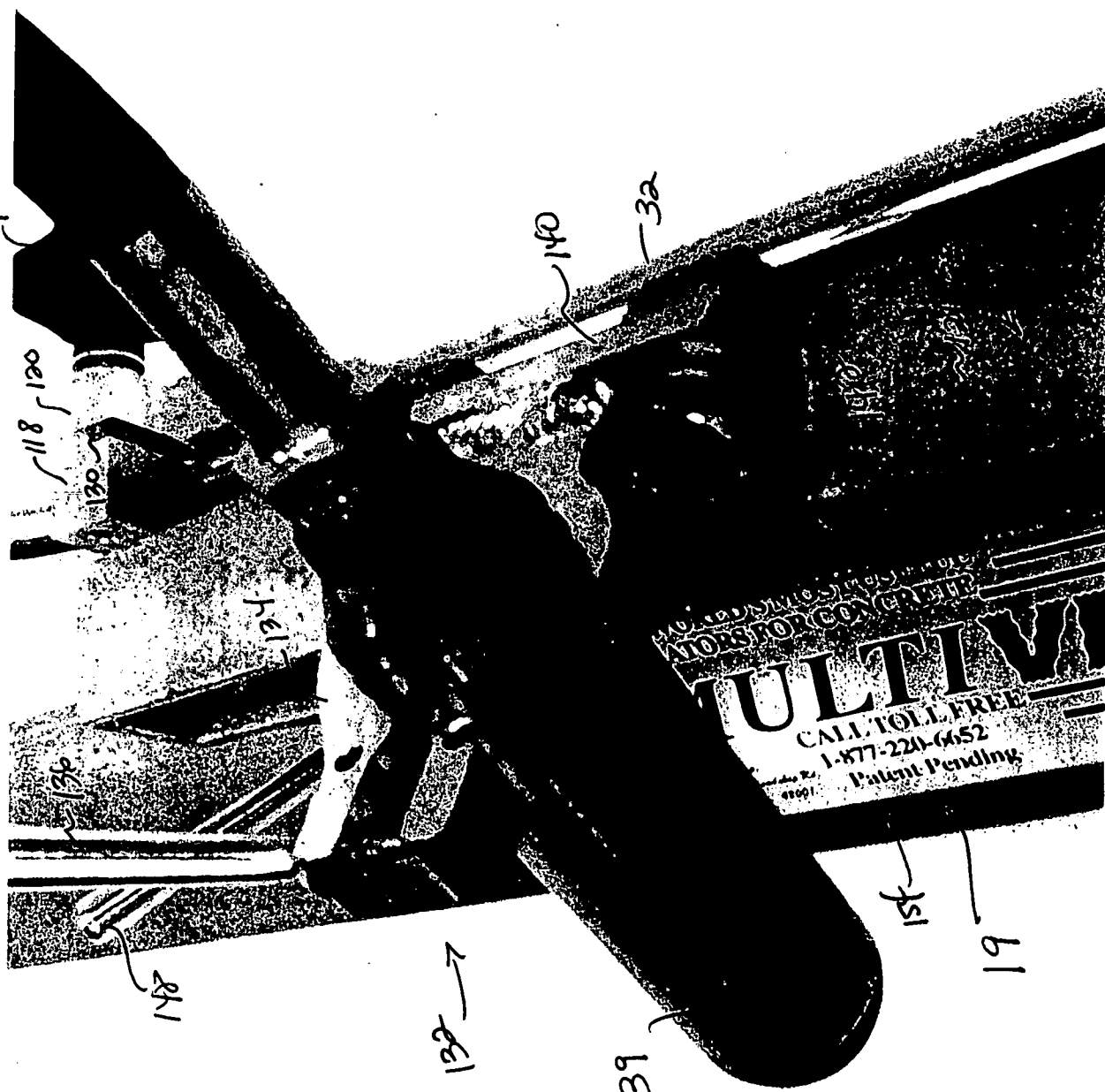


FIG. 18



FIG. 19

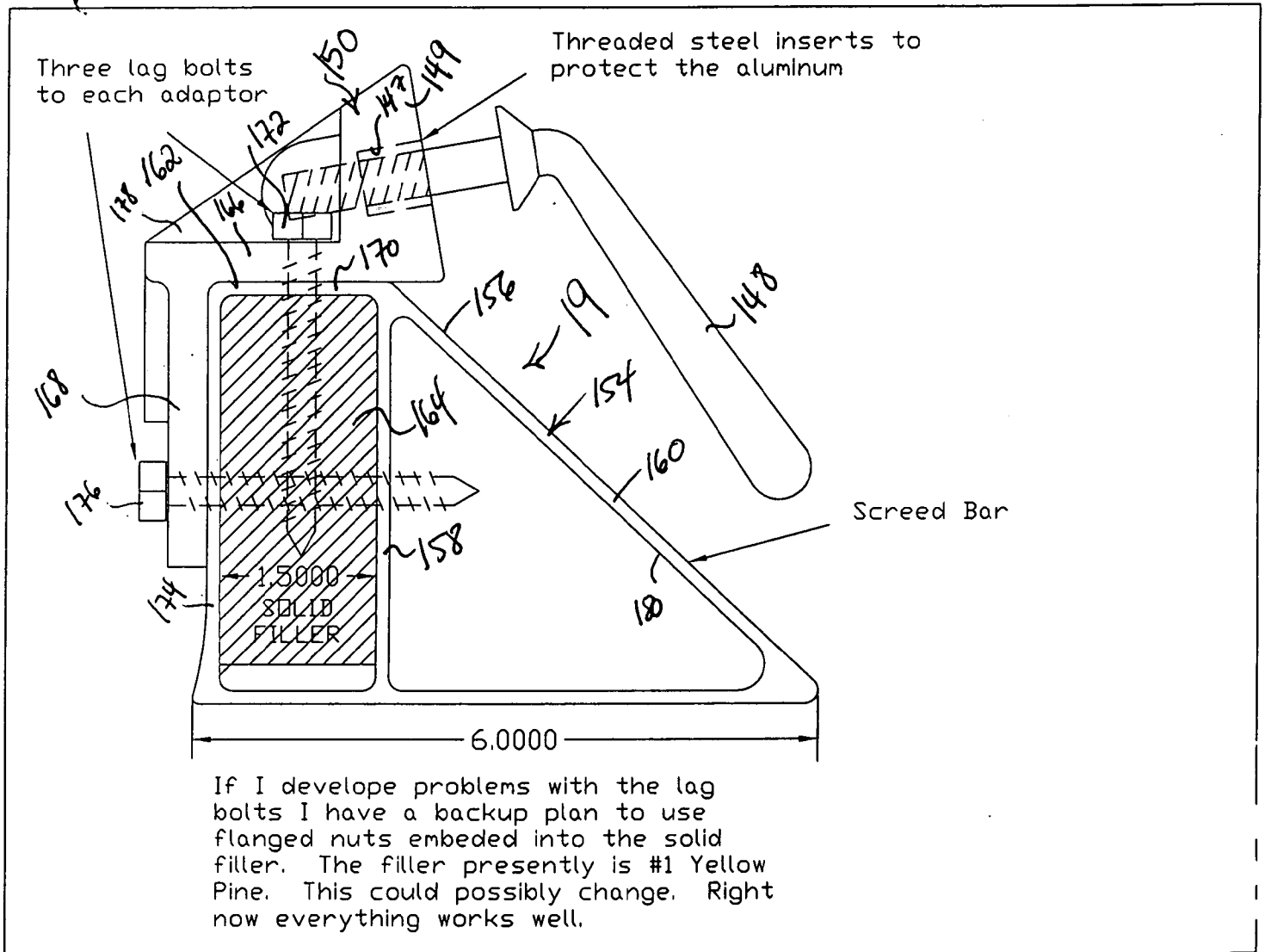


FIG. 21

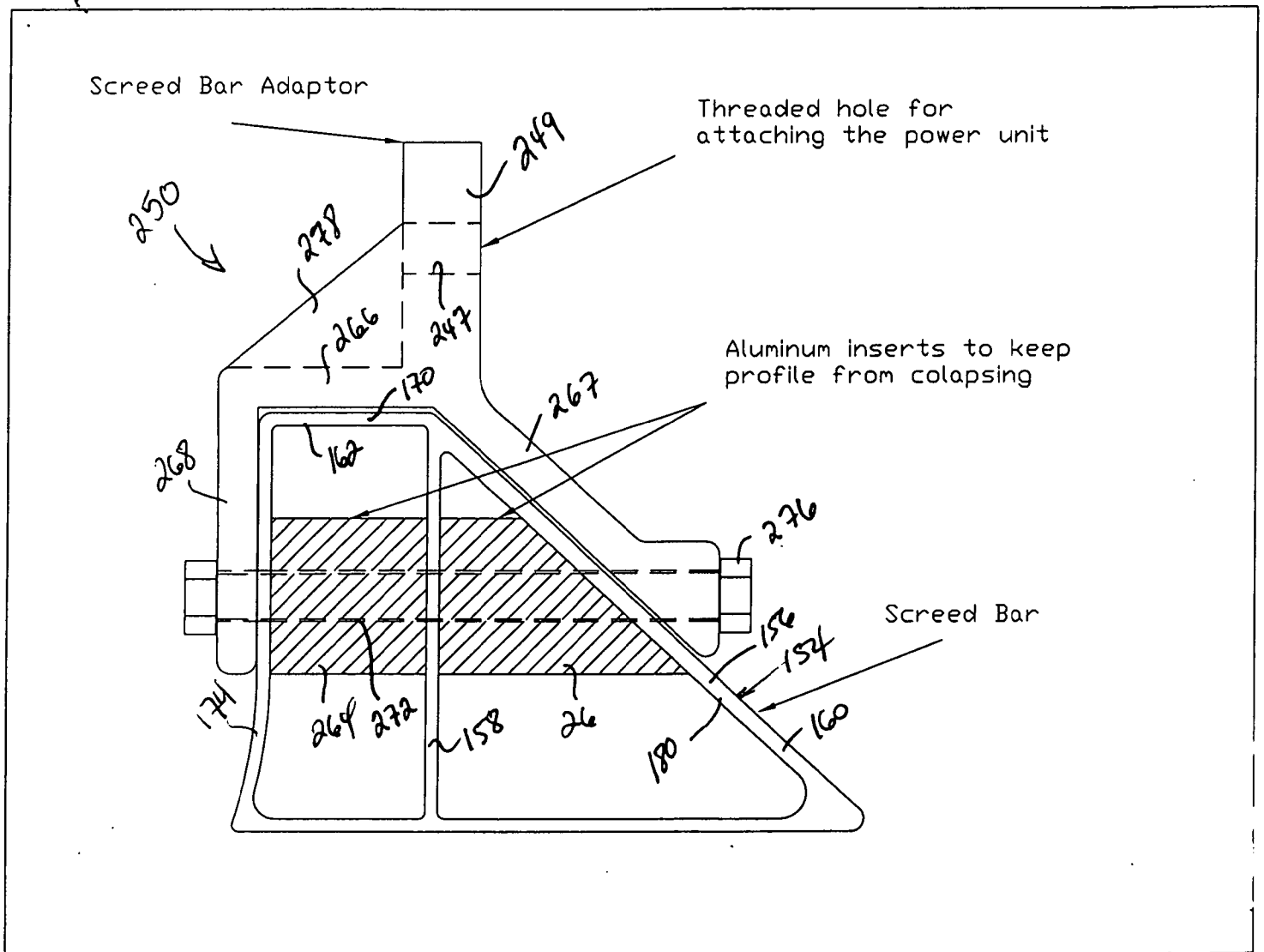


FIG. 22

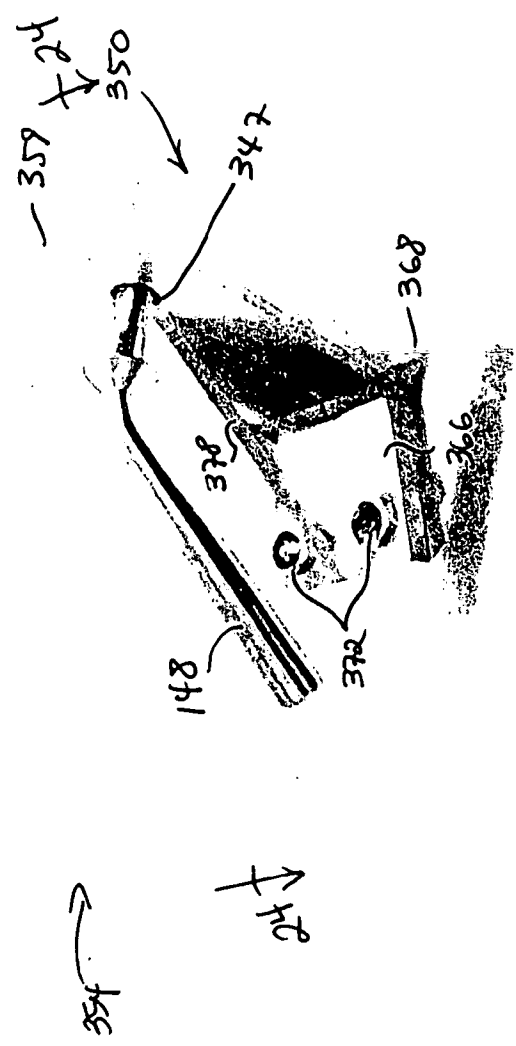
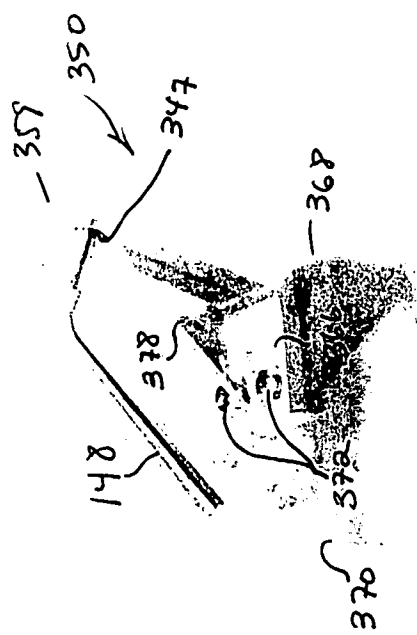
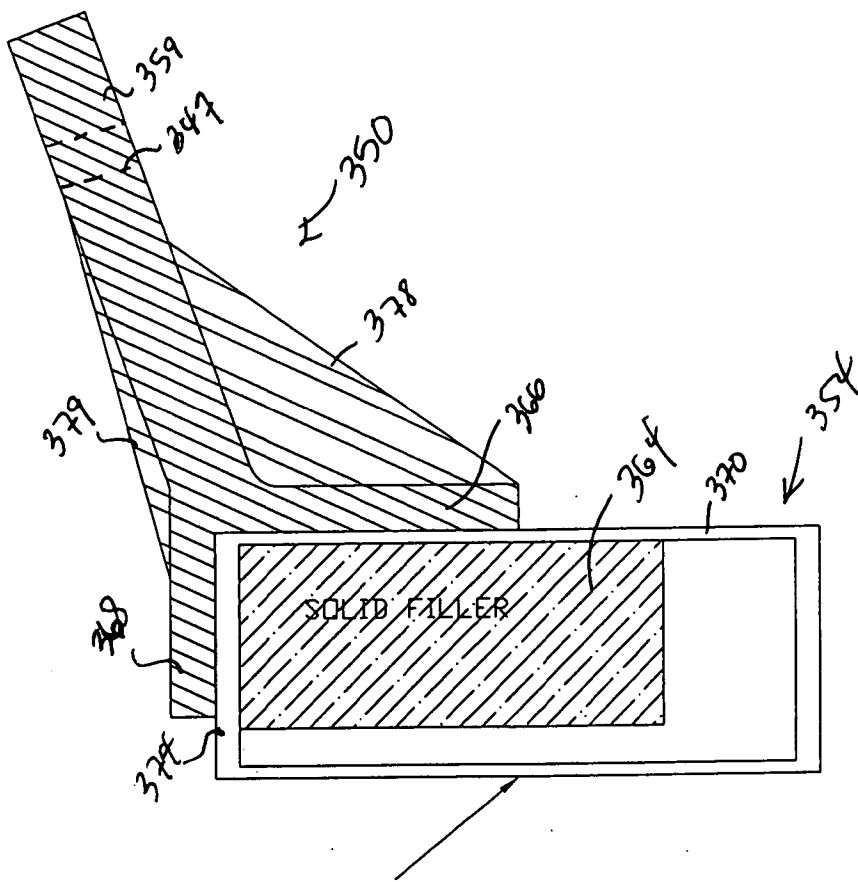
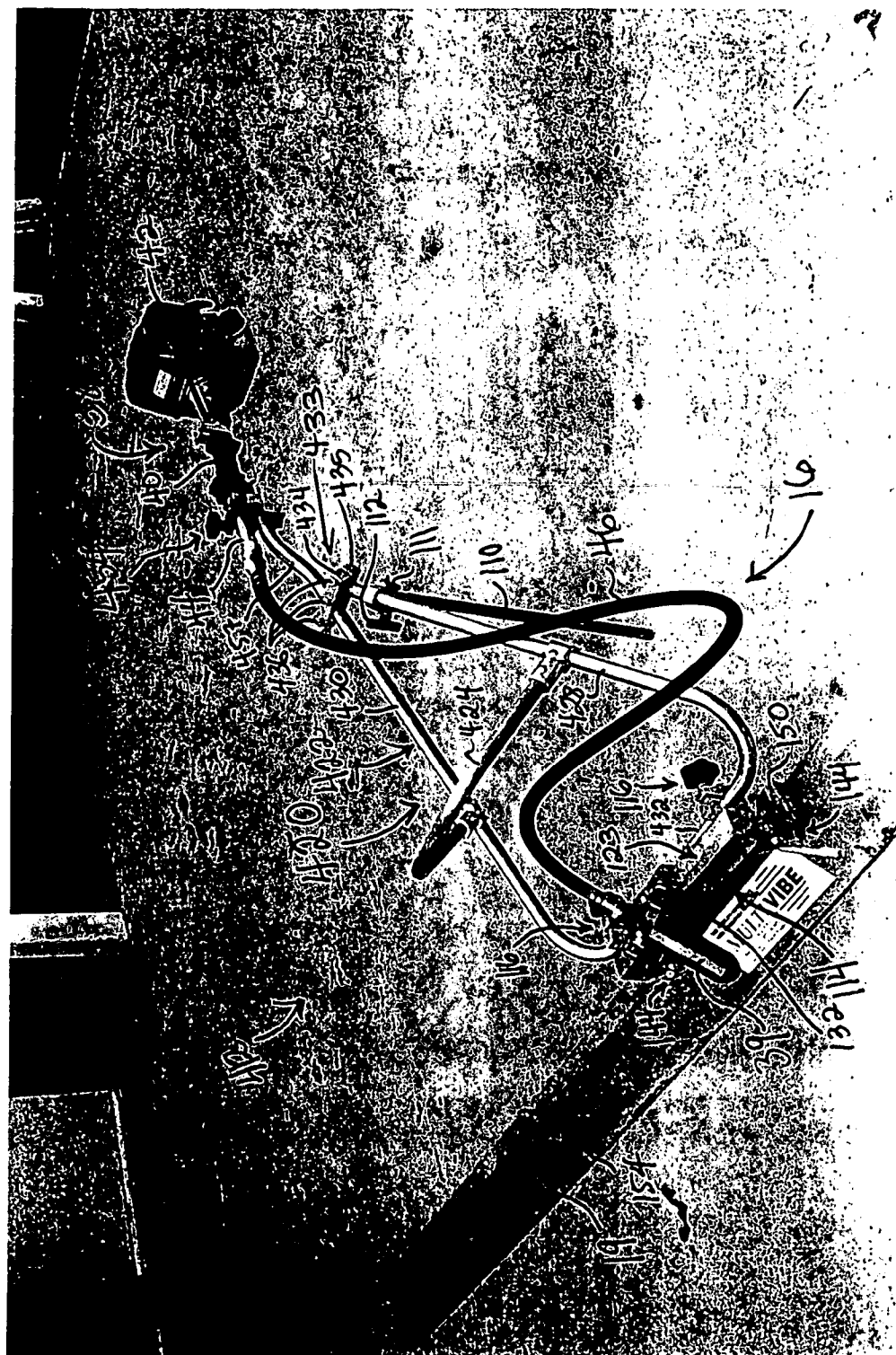


FIG. 23



2X5 Screed Bar

FIG. 24



525

6061-T6 alum.
1' OD X .125 Wall

Jlin Corp.
Joe Lindley
Ph # 270-554-2615
Fax # 270-554-0631
E-Mail j@multivike.com

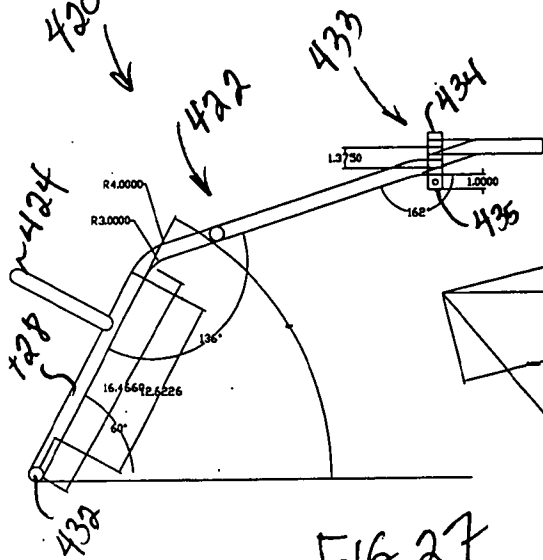


FIG. 27

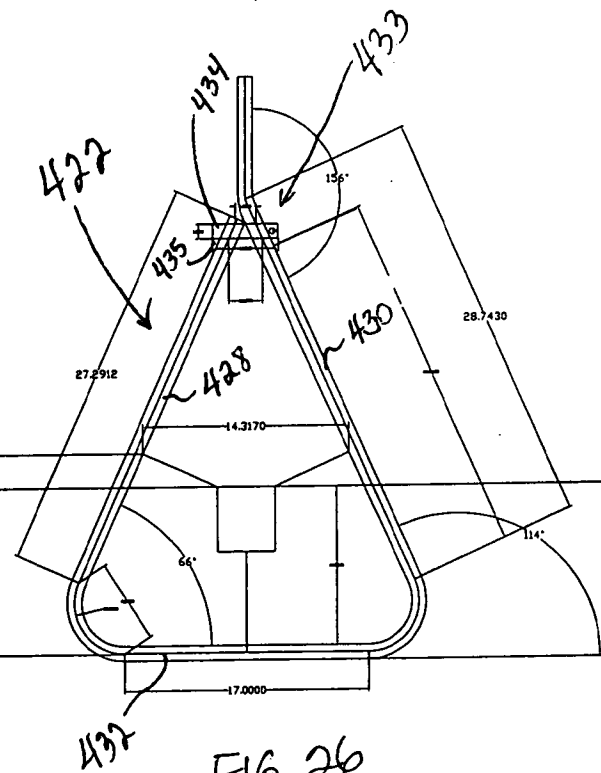


FIG. 26

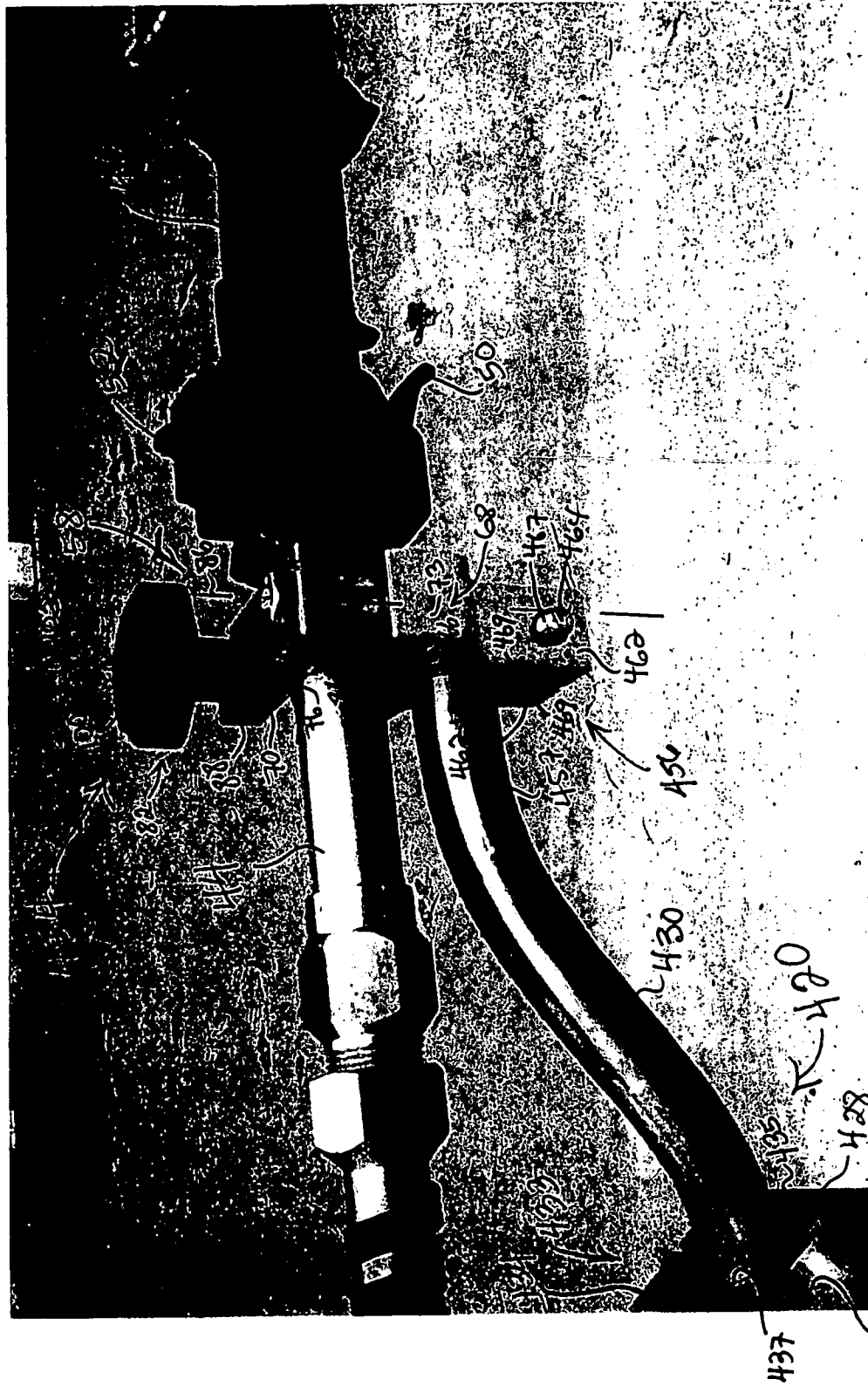
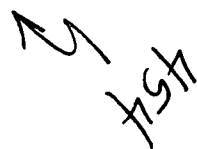


FIG. 28

98.296



16.29u

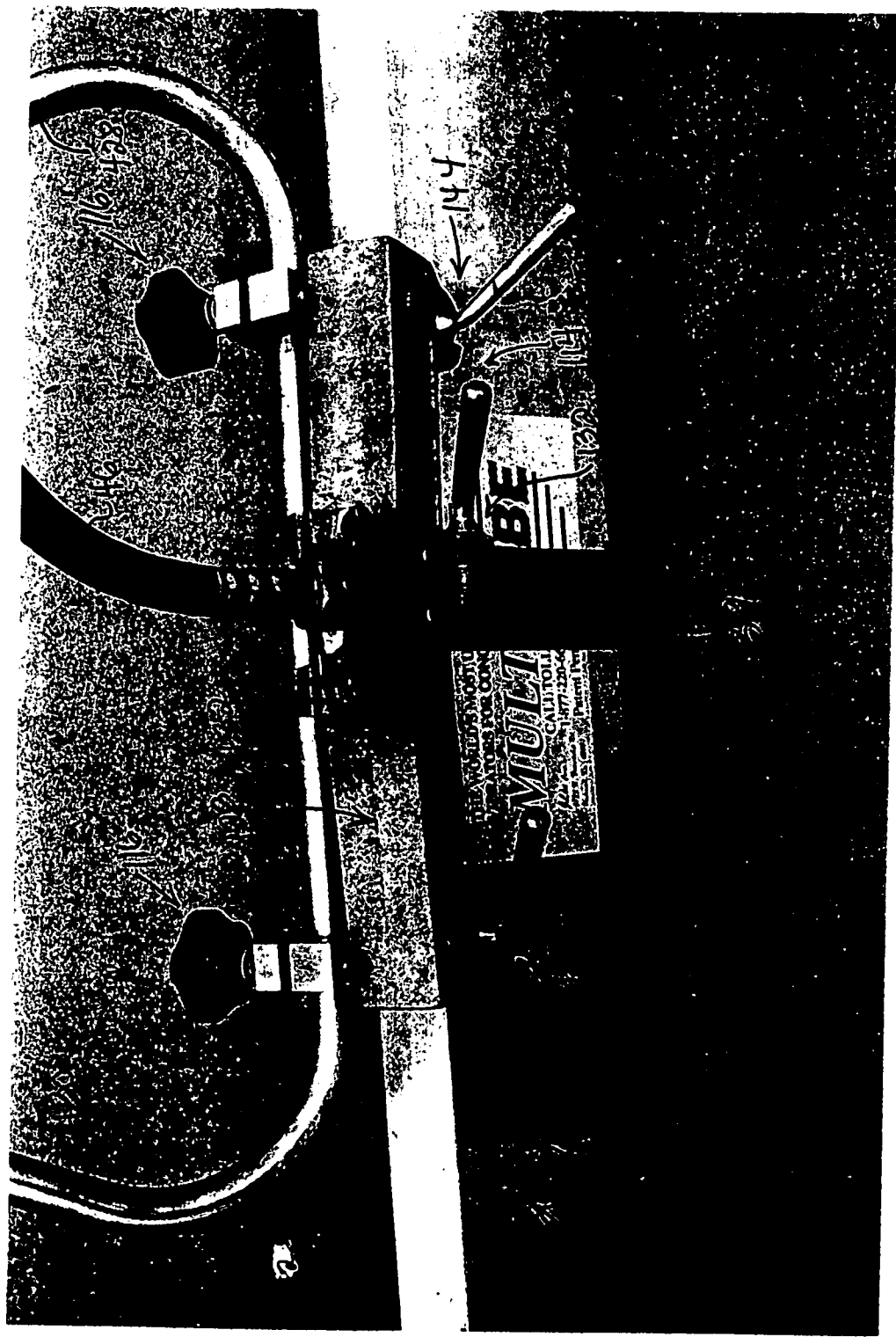


FIG. 30



FIG. 32

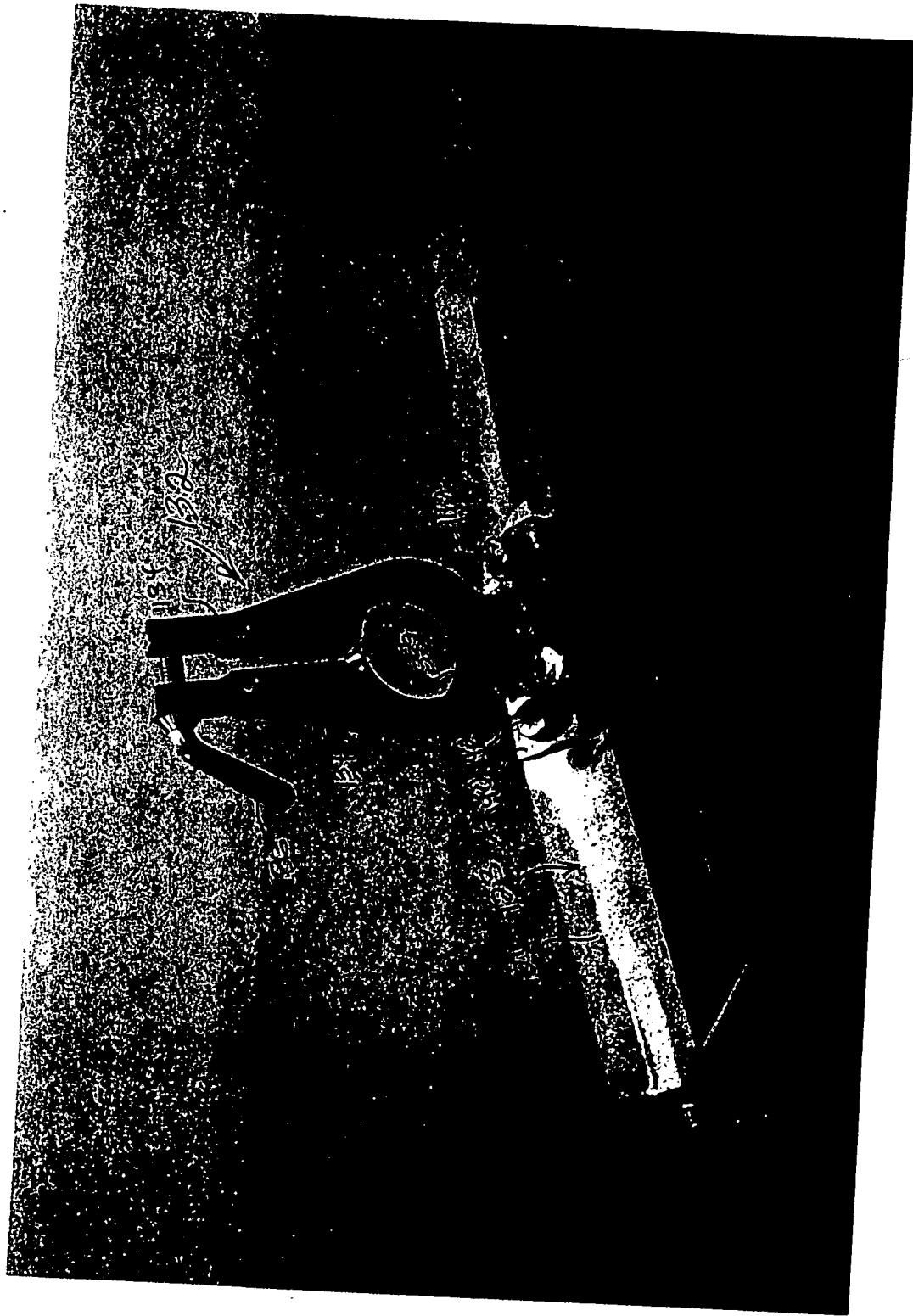


FIG. 33